

**Conference:** International Conference on Recent Advances in Microwave Theory and

Applications

**Location:** Jaipur, India

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**Title:** “WMAP – A Portrait of the Early Universe”

**Presenter:** Edward Wollack

**Abstract:**

A host of astrophysical observations suggest that early Universe was incredibly hot, dense, and homogeneous. A powerful probe of this time is provided by the relic radiation which we refer to today as the Cosmic Microwave Background (CMB). Images produced from this light contain the earliest glimpse of the Universe after the “Big Bang” and the signature of the evolution of its contents. By exploiting these clues, constraints on the age, mass density, and geometry of the early Universe can be derived. A brief history of the evolution of the microwave radiometer systems and map making approaches used in advancing these aspects our understanding of cosmological will be reviewed. In addition, an overview of the results from NASA’s *Wilkinson Microwave Anisotropy Probe* (WMAP) will be presented.

**REFERENCES:**

- [1] Bennett, C.L., Bay, M., Halpern, M., Hinshaw, G., Jackson, C., Jarosik, N., Kogut, A., Limon, M., Meyer, S.S., Page, L., Spergel, D.N., Tucker, G.S., Wilkinson, D.T., Wollack, E., Wright, E.L., “The Microwave Anisotropy Probe Mission,” 2003, *ApJ*, 2003, Vol. 583, pp. 1-23.
- [2] Pospieszalski, M.W., Wollack, E.J., Bailey, N., Thacker, D., Webber, J., Nguyen, L.D., Le, M., Lui, M., “Design and Performance of Wideband, Low-Noise, Millimeter-Wave Amplifiers for Microwave Anisotropy Probe Radiometers,” 2000, *Radio Frequency Integrated Circuits (RFIC) Symposium, Digest of Papers*, pp. 217 –220.
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